

# HIGHER DIPLOMA IN SCIENCE IN COMPUTING

(WITH SPECIALISATIONS)

## FACTFILE

### Delivery

Blended - Livestream with some Campus Stream classes, scheduled in advance. See page 4 for more information

### Application

Apply online at [www.ncirl.ie](http://www.ncirl.ie)

### Start Date

Sept 2022

### Part-time Schedule

#### Indicative Schedule

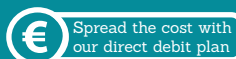
Three evenings per week  
18.00 - 22.00 and a number  
of Saturdays 09.00 - 18.00

#### Fees

€4,725  
(Fees revised annually)

#### Duration

This course is 3 semesters  
delivered over 1 calendar year



## Course Description

The course teaches students computing fundamentals, complemented with detailed knowledge, problem-solving and specialised technical skills required for analysing, designing and developing technical software solutions. The course offers specialisations in the second semester to choose from. The stream element is a focused set of modules to bring the learners quickly to the industry entry standard for the chosen specialisation.

The streams/specialisations (subject to availability) are: Software Development, Cybersecurity, Artificial Intelligence and Machine Learning, Blockchain and Web Development.

The **Software Development** stream provides learners detailed knowledge, problem-solving and technical skills in the area of software development using a modern programming language, such as Java, and application development framework(s).

The **Cybersecurity** stream provides detailed knowledge, problem-solving and specialised technical skills required for application security development, forensics investigation, application/service vulnerability detection and incident detection.

The **Artificial Intelligence** and **Machine Learning** stream provides learners an understanding and application development of AI-powered products by leveraging expertise in machine learning and computational methods.

The **Blockchain** stream explores the development of blockchain applications and their implications in other fields by providing a practical understanding of blockchain application development, blockchain foundations and distributed ledger systems.

The **Web Development** stream provides learners technical and development skills in core topics of web programming covering topics such as advanced client-side development, cloud application development and DevOpsSec.

## Who is the course for?

This course will appeal to graduates with a level 8 degree from different backgrounds who would wish to change their non-ICT qualification into the computer science field through a level 8 award in computing.

It will also appeal to technical and non-technical professionals who would like to upgrade their skills in one of the specialisations provided by this course, helping them to progress faster in their employment or to apply the knowledge in their current role.

## Award and Progression

The Higher Diploma in Science in Computing is awarded by QQI at level 8 on the National Framework of Qualifications (NFQ). Students who successfully complete this course may be eligible to progress to a major award at level 9 on the NFQ.

As graduates from other disciplines and with work experience, learners will have life skills and experiences that they bring with them on to the programme and into a new subject domain. Therefore, they are eligible for a number of roles. They could work in positions that are in-line with their skills but in the ICT sector or apply ICT knowledge gained through this programme to their current role.

Graduates may also avail of entry-level ICT-related positions, depending on the selected stream, such as software developer; DevOps engineer; application developer; entry-level cybersecurity engineer; cybersecurity tester; computer forensics examiner; software tester; front-end developer, web developer.

## COURSE CONTENT

### Semester 1

- Software Development
- Object Oriented Software Engineering
- Introduction to Databases
- Web Design and Client-Side Scripting

### Semester 2

- Computer Architecture Operating Systems and Networks

AND Choose one of the streams laid out below:

#### Software Development Stream

- Data Structures
- Algorithms and Advanced Programming
- Distributed Systems

#### Cybersecurity Stream

- Security Principles and Secure Programming
- Network and Web Penetration Testing
- Digital Forensics

#### AI/ML Stream

- Artificial Intelligence
- Machine Learning Fundamentals
- Statistics

#### Blockchain Stream

- Blockchain Foundations
- Blockchain Application Development
- Distributed Systems

#### Web Development Stream

- Cloud Application Development
- Advanced Client-Side Development
- DevOpsSec

### Semester 3

- Project

**Note:** Prospective students are required to specify the specialisation they would like to follow when they apply for a place within the Higher Diploma in Science in Computing programme.

**Note:** streams/specialisations will run subject to student numbers.

### Entry Requirements

A level 8 degree or its equivalent in a non-cognate discipline. Non-standard applications will be also considered on an individual basis. The college operates a Recognition of Prior Experiential Learning (RPEL) scheme meaning applicants who do not meet the normal academic requirements may be considered based on extensive relevant work and other experience. This may be assessed using a portfolio of learning, demonstration of work produced, and interview.

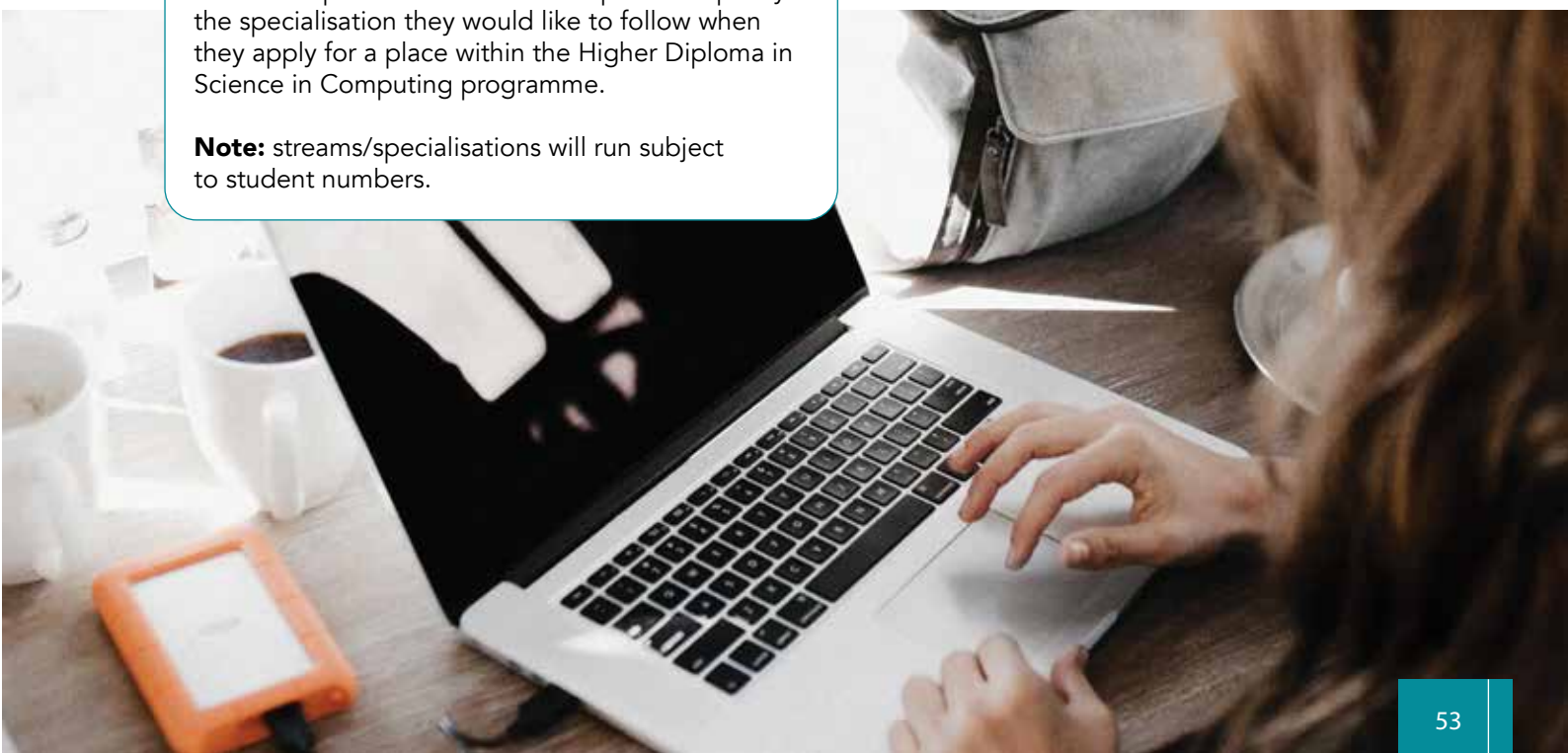
### Assessment

The course will be assessed with a blend of continuous assessments and/or project work and exams. Please note that in some instances exams may take place in the daytime, evenings and at weekends.

### Laptop Requirement

This programme has a BYOD (Bring Your Own Device) policy. Specifically, students are expected to successfully participate in lectures, laboratories and projects using a laptop computer with a substantial hardware configuration. A suitable configuration is 8GB of RAM (16GB are recommended); a modern 64-bit x86 processor (Intel i5 or superior); 250+ GB of available space in hard disk; WiFi card; and a recent version of Ubuntu, macOS or Windows. It is the responsibility of the student to ensure their laptop is functioning correctly and that they have full administrator rights to the machine. NCI IT does not provide support for personal devices.

Some students may be able to avail of the Student Laptop Loan Scheme, subject to eligibility. See page 77 for more information.



# COURSE DELIVERY

## for 2022/23

The majority of NCI's part-time programmes featured in this prospectus will be delivered in a blended format for 2022/23.

In most programmes this will mean the majority of the programme content will be delivered online but with some on-campus sessions. This will vary with the programme, but the breakdown of your course will be communicated to you in advance, and you will be able to plan for any required campus elements.

Across courses the following delivery methods may be employed:

**Campus** – The learning event (lecture, tutorial, laboratory, or seminar) takes place face to face on campus.

**Livestream** – The learning event takes place online.

**Campus-stream** – The learning event takes place face to face on campus and is simultaneously streamed online.

**Directed e-learning** – There are specified tasks to be carried out by students during a designated time interval (such as viewing a video, taking a quiz)

How these elements are broken down for each course will be available on the course pages on [ncirl.ie](http://ncirl.ie).

In some instances, recorded lectures may also be available.

### **Bring Your Own Device**

Given the amount of online content in these programmes it is a requirement that all students applying to NCI have access to a suitable laptop and broadband that will allow them to engage with online and other classes. A student laptop loan scheme is available for eligible students. See page 77.